



**Commonwealth Edison**

1400 Opus Place  
Downers Grove, Illinois 60515

January 16, 1995

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Quad Cities Nuclear Station Units 1 and 2, Core Shroud  
Modification Design Documents and Unit 2 Core Shroud  
Inspection Plan  
NRC Docket Nos. 50-254 and 50-265

Reference: G. Benes (ComEd) to W. Russell letter dated August 23, 1994.

In the referenced letter, Commonwealth Edison (ComEd) provided a response to Generic Letter 94-03, "Intergranular Stress Corrosion Cracking of the Core Shrouds in Boiling Water Reactors." In that letter, ComEd committed to provide the inspection plan for the Quad Cities Unit 2 core shrouds (GL 94-03 Item 2.(a)) and the plans for the repair of the Quad Cities Unit 1 and Unit 2 core shroud (GL 94-03 Item 2.(b)). This letter provides the Design Documents for the repair of the Quad Cities Station Unit 1 and Unit 2 core shrouds as Attachment A (with Enclosures 1 through 9), and the Quad Cities Station Unit 2 Core Shroud Inspection Plan as Attachment B.

The Unit 1 and Unit 2 Core Shroud repair was developed in accordance with ASME Section XI repair and replacement program requirements. This modification does not remove the existing flaws, nor replace the flawed components, but rather structurally replaces the core shroud horizontal circumferential welds H1 through H7, and accounts for cracking of the H8 weld. The design has been developed considering through-wall 360 degree circumferential cracks at the H1 through H7 welds. The repair will be performed as an alternative to the ASME Section XI Code as permitted by 10 CFR 50.55a(a)(3). In accordance with requirements of the above reference, ComEd is submitting this alternative code repair for your review and approval.

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January 16, 1995

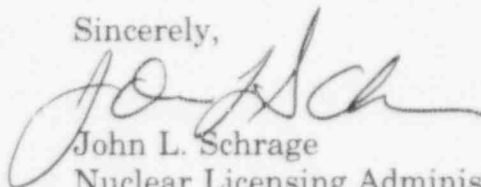
Upon completion of the Unit 2 core shroud repair installation package, ComEd will provide the 10CFR50.59 safety evaluation as a supplement to the design package. ComEd is presently planning to install the core shroud repair hardware into Quad Cities Unit 2 on April 26, 1995 during the Q2R13 refueling outage. The Quad Cities Unit 2 inspection plan (Attachment B) has been integrated with the design of the modification. The Quad Cities Unit 1 installation will be performed during the Q1R14 refuel outage.

This submittal contains items which are proprietary in nature to the General Electric Nuclear Company. These proprietary items are contained in Enclosures 5 and 8 of Attachment A. ComEd has specifically marked the portions of the submittal that are considered proprietary and requests that all material within Enclosures 5 and 8 which is specifically marked as proprietary be withheld from public disclosure. To that end, ComEd has provided non-proprietary versions of Enclosures 5 and 8 as Attachment D. ComEd has included, as Attachment C, an affidavit per the requirements of 10CFR 2.790(b) explaining the reasons and circumstances for withholding the applicable information from public disclosure.

To the best of my knowledge and belief, the analyses and evaluations contained in these documents are true and correct. In some respects these documents are not based on my personal knowledge, but on information furnished by other Commonwealth Edison employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

If there are any questions concerning this matter, or need for further clarification, please contact this office.

Sincerely,



John L. Schrage  
Nuclear Licensing Administrator



*Mary Jo Yack* 1-16-95

Attachment A	Quad Cities Station Unit 1 and Unit 2 Core Shroud Repair Design Documents (includes Enclosures 1 through 9)
Attachment B	Quad Cities Station Unit 2 Core Shroud Inspection Plan
Attachment C	Quad Cities Station Unit 1 and Unit 2 Selected Core Shroud Repair Design Documents - General Electric Company Affidavit
Attachment D	Quad Cities Station Unit 1 and Unit 2 Selected Core Shroud Repair Design Documents; Non-Proprietary Version - Enclosures 5 and 8

cc: J. Martin, Regional Administrator - RIII  
R. Pulsifer, Project Manager - NRR  
C. Miller, Senior Resident Inspector - Quad Cities  
Office of Nuclear Facility Safety - IDNS

**ATTACHMENT C**  
**Quad Cities Station Unit 1 and Unit 2**  
**Selected Core Shroud Repair Design Documents**

**General Electric Company Affidavit**

## General Electric Company

### AFFIDAVIT

I, **George B. Stramback**, being duly sworn, depose and state as follows:

- (1) I am Project Manager, Licensing Services, General Electric Company ("GE") and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information sought to be withheld is contained in the GE proprietary report GENE-771-71-1094, Revision 1, "*Quad Cities Units 1 & 2 - Shroud Repair Seismic Analysis*", (GE Proprietary), January 5, 1995 and drawings 107E5487, Rev. 1, "*Reactor Modification/Installation Drawing*", including a color picture of the 107E5487 modification and those drawings listed in the Attachment. These documents, taken as a whole, constitutes a proprietary compilation of information, some of it also independently proprietary, prepared by the General Electric Company. The independently proprietary elements that are drawings or a picture are marked as proprietary information and the independently proprietary elements that are in reports are delineated by bars marked in the margin adjacent to the specific material.
- (3) In making this application for withholding of proprietary information of which it is the owner, GE relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), 2.790(a)(4), and 2.790(d)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which fit into the definition of proprietary information are:
  - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by General Electric's competitors

without license from General Electric constitutes a competitive economic advantage over other companies;

- b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;
- c. Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of General Electric, its customers, or its suppliers;
- d. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, of potential commercial value to General Electric;
- e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

Both the compilation as a whole and the marked independently proprietary elements incorporated in that compilation are considered proprietary for the reasons described in items (4)a., (4)b. and 4(e), above.

- (5) The information sought to be withheld is being submitted to NRC in confidence. That information (both the entire body of information in the form compiled in these drawings, and the marked individual proprietary elements) is of a sort customarily held in confidence by GE, and has, to the best of my knowledge, consistently been held in confidence by GE, has not been publicly disclosed, and is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within GE is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GE are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers,

and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

- (8) The information identified in paragraph (2) and the Attachment, above, is classified as proprietary because it constitutes a confidential compilation of information, including a report and detailed design drawing results and a picture of a hardware design modification (stabilizers for the shroud horizontal welds) intended to be installed in a reactor to resolve the reactor pressure vessel core shroud weld cracking concern. The development and approval of this design modification utilized systems, components, and models and computer codes that were developed at a significant cost to GE, on the order of several hundred thousand dollars.

The detailed results of the analytical models, methods, and processes, including computer codes, and conclusions from these applications, represent, as a whole, an integrated process or approach which GE has developed, and applied to this design modification. The development of the supporting processes was at a significant additional cost to GE, in excess of a million dollars, over and above the large cost of developing the underlying individual proprietary report and drawings information.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GE's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GE's comprehensive BWR technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

GE's competitive advantage will be lost if its competitors are able to use the results of the GE experience to avoid fruitless avenues, or to normalize or verify their own process, or to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

While some of the underlying analyses, and some of the gross structure of the process, may at various times have been publicly revealed, enough of both the analyses and the detailed structural framework of the process have been held in confidence that this information, in this compiled form, continues to have great competitive value to GE. This value would be lost if the information as a whole, in the context and level of detail provided in the subject GE drawings, were to be disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure would unfairly provide competitors with a windfall, and deprive GE of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing its analytical process.



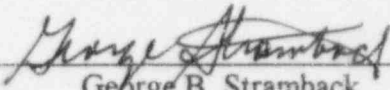
STATE OF CALIFORNIA       )  
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COUNTY OF SANTA CLARA    )

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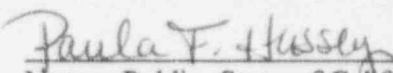
George B. Stramback, being duly sworn, deposes and says:

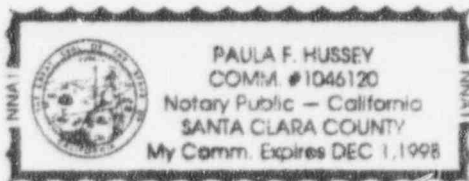
That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at San Jose, California, this 12<sup>th</sup> day of January 1995.

  
George B. Stramback  
General Electric Company

Subscribed and sworn before me this 12<sup>th</sup> day of January 1995.

  
Notary Public, State of California



# Attachment

	Drawing No.	Revision	Identification
A	112D5256	1	BRACKET YOKE ASSY
B	112D5264	1	LOCK, BOLT
C	112D6506	1	LOWER STABILIZER ASSY
D	112D6508	1	TOGGLE BOLT ASSY
E	112D6509	1	TIE ROD ASSY
F	112D6510	1	STABILIZER SUPPORT ASSY
G	112D6511	1	UPPER STABILIZER ASSY
H	112D6512	1	LATCH
I	112D6513	1	SCREW, MID SUPPORT
J	112D6514	1	RING, MID SUPPORT
K	112D6515	1	WASHER, JACK BOLT
L	112D6516	1	SLEEVE, JACK BOLT
M	112D6518	1	RETAINER
N	112D6519	1	NUT, TOP SUPPORT
O	112D6520	1	BOLT, TOP SUPPORT
P	112D6521	1	PIN
Q	112D6522	1	NUT, TIE ROD
R	112D6523	1	PIN, CLEVIS
S	112D6525	1	EXTENSION, LOWER SPRING
T	112D6527	1	SCREW, YOKE
U	112D6528	1	BRACKET, UPPER SPRING
V	112D6529	1	CLIP, RETAINER
W	112D6530	1	BOLT, JACK
X	112D6531	1	NUT, TOGGLE BOLT
Y	112D6532	1	WASHER, TOGGLE BOLT
Z	112D6533	1	PIN, TOGGLE BOLT
AA	112D6534	1	TOGGLE
BB	112D6535	1	SUPPORT, LOWER
CC	112D6536	1	BOLT, TOGGLE
DD	112D6537	1	CONTACT, UPPER
EE	112D6539	1	CONTACT, LOWER
FF	112D6540	1	SUPPORT
GG	112D6541	1	UPPER SUPPORT, LONG



### Attachment (cont'd)

HH	112D6542	1	SPRING, UPPER
II	112D6543	1	SPRING, LOWER
JJ	112D6544	1	ROD, TIE
KK	112D6545	1	TIE ROD SPRING ASSY
LL	112D6594	1	SPRING, RETAINER
MM	112D6595	1	BRACKET YOKE
NN	112D6596	1	UPPER SUPPORT SHORT
OO	112D6597	1	NUT, LOCK
PP	112D6598	1	BOLT, TENSION ARM
QQ	112D6599	1	ARM, TORSION
RR	112D6607	1	MID SUPPORT ASSY
SS	112D6612	1	SUPPORT, MID SHROUD

**ATTACHMENT A**  
**Quad Cities Station Unit 1 and Unit 2**  
**Core Shroud Repair Design Documents**

**Enclosures 1 through 9**

## ATTACHMENT A

The Quad Cities Unit 1 and Unit 2 core shroud repair Design Documents are provided in the following Enclosures:

- Enclosure 1. GENE Design Specification, 25A5668, Revision 2, "Shroud Stabilizer Hardware - Quad Cities Units 1 & 2"
- Enclosure 2. GENE Code Design Specification, 25A5669, Revision 2, "Reactor Pressure Vessel - Quad Cities Units 1 & 2"
- Enclosure 3. GENE Fabrication Specification, 25A5670, Revision 2, "Fabrication of Shroud Stabilizer"
- Enclosure 4. GENE Installation Specification, 25A5615, Revision 0, "Shroud Stabilizer Installation- Quad Cities Units 1 & 2"
- Enclosure 5. GENE 771-71-1094, Revision 1, "Quad Cities Units 1 & 2 - Shroud Repair Seismic Analysis"
- Enclosure 6. GENE 771-68-1094, Revision 2, "Shroud and Shroud Repair Hardware Stress Analysis - Shroud Repair for H1 Through H7 Welds for Commonwealth Edison Quad Cities Nuclear Power Station Units 1 and 2"
- Enclosure 7. GENE Stress Report, 25A5672, Revision 1, "Pressure Vessel - Quad Cities I and II"
- Enclosure 8. One color picture of a computer model of the core shroud repair installed at Quad Cities.
- Enclosure 9. Construction drawings of the core shroud hardware, as listed below.

### Construction Drawings

- 1. Reactor Modification/Installation Drawing 107E5487 Sheet 1 of 3, Revision 1, Reactor Assembly
- 2. Reactor Modification/Installation Drawing 107E5487 Sheet 2 of 3, Revision 1, Reactor Assembly
- 3. Reactor Modification/Installation Drawing 107E5487 Sheet 3 of 3, Revision 1, Reactor Assembly
- 4. Assembly Drawing 112D6506, Revision 1, Sheet 1 of 1, Lower Stabilizer Assembly
- 5. Assembly Drawing 112D6508, Revision 1, Sheet 1 of 1, Toggle Bolt Assembly
- 6. Assembly Drawing 112D6509, Revision 1, Sheet 1 of 1, Tie Rod Assembly
- 7. Assembly Drawing 112D6510, Revision 1, Sheet 1 of 1, Stabilizer Support Assembly
- 8. Assembly Drawing 112D6511, Revision 1, Sheet 1 of 1, Upper Support Assembly
- 9. Detail Drawing 112D6512, Revision 1, Sheet 1 of 1, Latch
- 10. Detail Drawing 112D6513, Revision 1, Sheet 1 of 1, Screw, Mid Support
- 11. Detail Drawing 112D6514, Revision 1, Sheet 1 of 1, Ring, Mid Support
- 12. Detail Drawing 112D6515, Revision 1, Sheet 1 of 1, Washer, Jack Bolt
- 13. Detail Drawing 112D6516, Revision 1, Sheet 1 of 1, Sleeve, Jack Bolt
- 14. Detail Drawing 112D6518, Revision 1, Sheet 1 of 1, Retainer
- 15. Detail Drawing 112D6519, Revision 1, Sheet 1 of 1, Nut, Top Support
- 16. Detail Drawing 112D6520, Revision 1, Sheet 1 of 1, Bolt, Top Support
- 17. Detail Drawing 112D6521, Revision 1, Sheet 1 of 1, Pin
- 18. Detail Drawing 112D6522, Revision 1, Sheet 1 of 1, Nut, Tie Rod
- 19. Detail Drawing 112D6523, Revision 1, Sheet 1 of 1, Pin, Clevis
- 20. Detail Drawing 112D6525, Revision 1, Sheet 1 of 1, Extension, Lower Spring

**ATTACHMENT A (continued)**

Quad Cities Units 1 and 2 Core Shroud Design Modification Document List:

**Construction Drawings (continued)**

21.	Detail Drawing	112D6527,	Revision 1,	Sheet 1 of 1,	Screw, Yoke
22.	Detail Drawing	112D6528,	Revision 1,	Sheet 1 of 1,	Bracket, Upper Spring
23.	Detail Drawing	112D6529,	Revision 1,	Sheet 1 of 1,	Clip, Retainer
24.	Detail Drawing	112D6530,	Revision 1,	Sheet 1 of 1,	Bolt, Jack
25.	Detail Drawing	112D6531,	Revision 1,	Sheet 1 of 1,	Nut, Toggle Bolt
26.	Detail Drawing	112D6532,	Revision 1,	Sheet 1 of 1,	Washer, Toggle Bolt
27.	Detail Drawing	112D6533,	Revision 1,	Sheet 1 of 1,	Pin, Toggle Bolt
28.	Detail Drawing	112D6534,	Revision 1,	Sheet 1 of 1,	Toggle
29.	Detail Drawing	112D6535,	Revision 1,	Sheet 1 of 1,	Support, Lower
30.	Detail Drawing	112D6536,	Revision 1,	Sheet 1 of 1,	Bolt, Toggle
31.	Detail Drawing	112D6537,	Revision 1,	Sheet 1 of 1,	Contact, Upper
32.	Detail Drawing	112D6539,	Revision 1,	Sheet 1 of 1,	Contact, Lower
33.	Detail Drawing	112D6540,	Revision 1,	Sheet 1 of 1,	Support
34.	Detail Drawing	112D6541,	Revision 1,	Sheet 1 of 1,	Upper Support, Long
35.	Detail Drawing	112D6542,	Revision 1,	Sheet 1 of 1,	Spring, Upper
36.	Detail Drawing	112D6543,	Revision 1,	Sheet 1 of 1,	Spring, Lower
37.	Detail Drawing	112D6544,	Revision 1,	Sheet 1 of 1,	Rod, Tie
38.	Assembly Drawing	112D6545,	Revision 1,	Sheet 1 of 1,	Tie Rod-Spring Assembly
39.	Detail Drawing	112D6594,	Revision 1,	Sheet 1 of 1,	Spring, Retainer
40.	Detail Drawing	112D6595,	Revision 1,	Sheet 1 of 1,	Bracket Yoke
41.	Detail Drawing	112D6596,	Revision 1,	Sheet 1 of 1,	Upper Support Short
42.	Detail Drawing	112D6597,	Revision 1,	Sheet 1 of 1,	Nut, Lock
43.	Detail Drawing	112D6598,	Revision 1,	Sheet 1 of 1,	Bolt, Torsion Arm
44.	Detail Drawing	112D6599,	Revision 1,	Sheet 1 of 2,	Arm, Torsion
45.	Detail Drawing	112D6599,	Revision 1,	Sheet 2 of 2,	Arm, Torsion
46.	Assembly Drawing	112D6607,	Revision 1,	Sheet 1 of 1,	Mid Support Assembly
47.	Detail Drawing	112D6612,	Revision 1,	Sheet 1 of 1,	Support, Mid-Shroud
48.	Assembly Drawing	112D5256,	Revision 1,	Sheet 1 of 1,	Bracket Yoke Assembly
49.	Detail Drawing	112D5264,	Revision 1,	Sheet 1 of 1,	Lock, Bolt

**Enclosure 1**  
**GENE Design Specification, 25A5668, Revision 2**  
**"Quad Cities Units 1 & 2 - Shroud Stabilizer Hardware"**